Electronic Supplementary Material (ESI) for RSC Advances.
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Supporting Information for :

Chemically robust solution-processed indium zinc oxide thin film transistors fabricated by back channel wet-etched Mo electrodes

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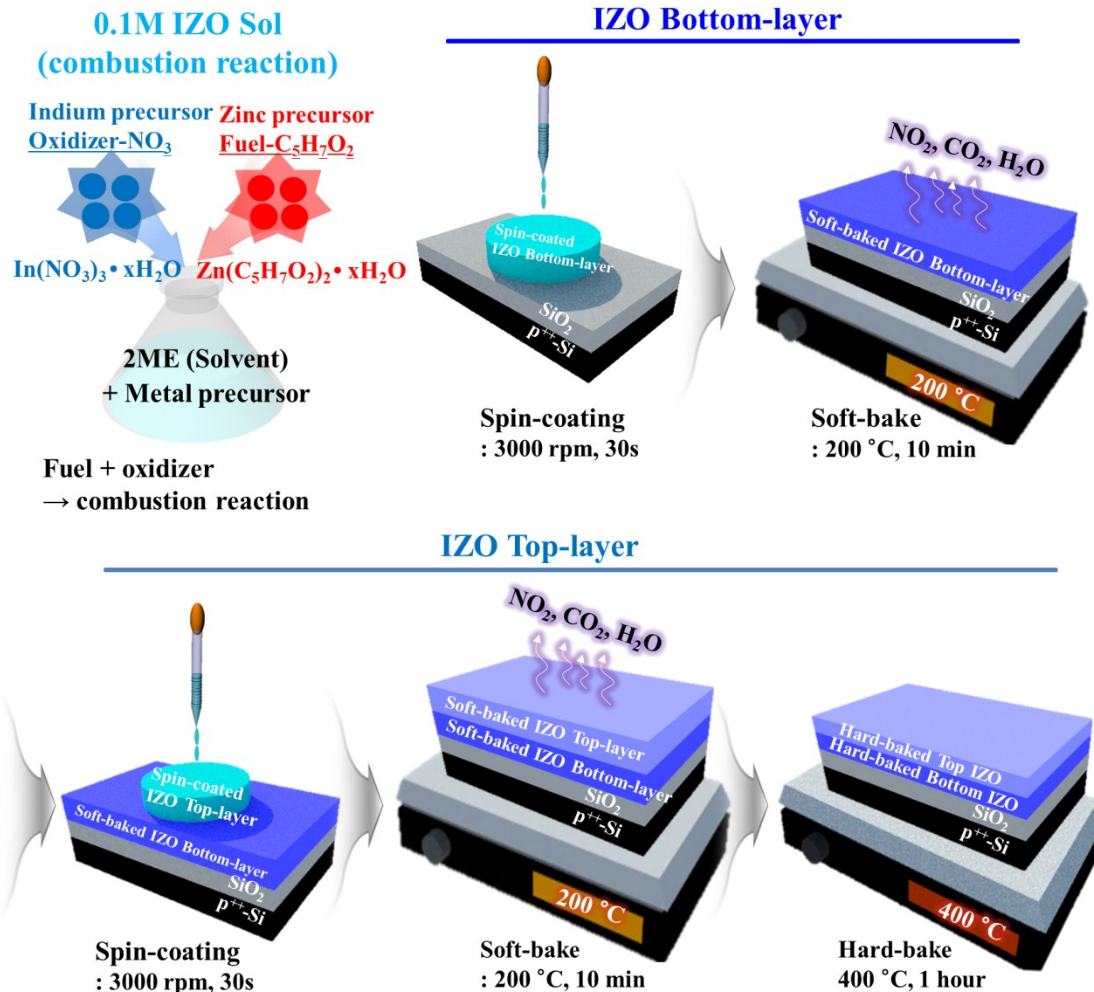
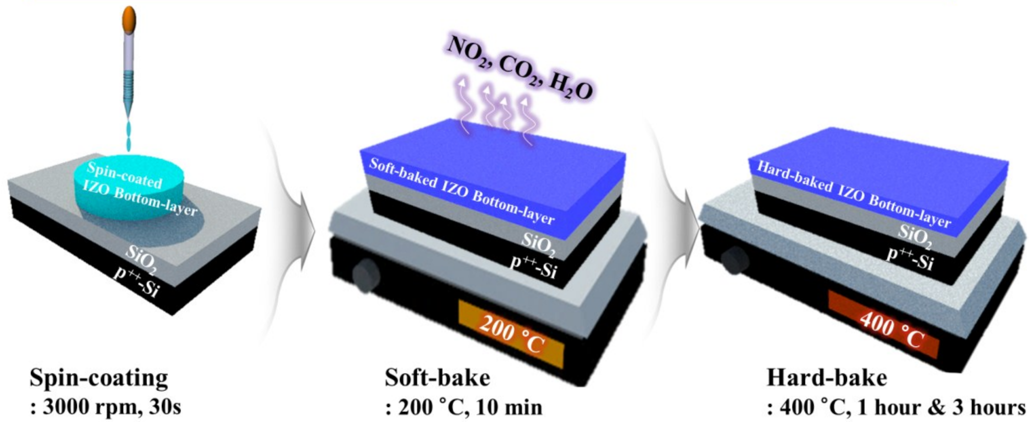


Fig. S1. Overall synthesis procedure for three types of solution-processed indium zinc oxide films controlling the stacking process and condensation reaction time: SDL 1h.

Hard-bake Double Layer (HDL) 1h+1h & 3h+3h

IZO Bottom-layer



IZO Top-layer

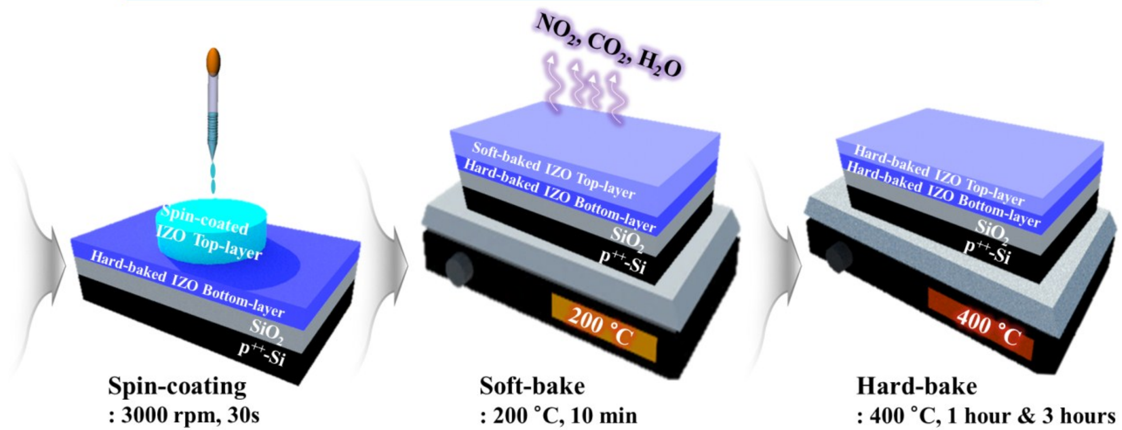


Fig. S2. Overall synthesis procedure for three types of solution-processed indium zinc oxide films controlling the stacking process and condensation reaction time: HDL 1h+1h, and HDL 3h+3h.

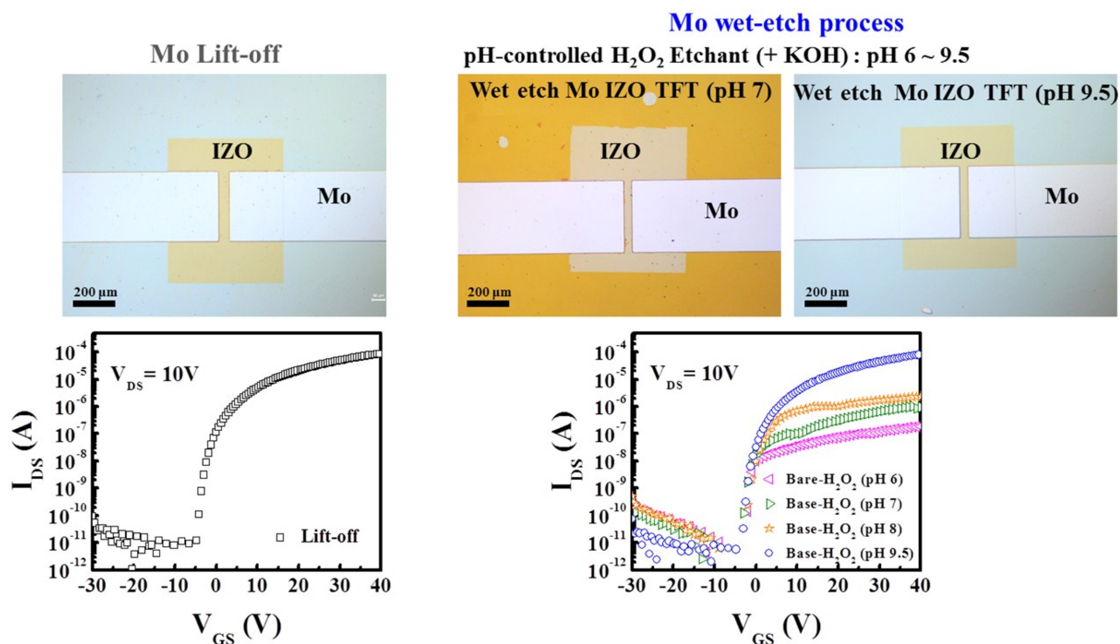


Fig. S3. Transfer curves and surface optical microscopy images of solution-processed indium zinc oxide (HDL 3h+3h) thin film transistors prepared with (a) lift-off and (a) wet-etched Mo source/drain electrodes (pH 6-9.5).

Solution: H_2O_2 based etchant (pH 9.5)
Applied Voltage: - 0.194 V
Reference electrode: Silver-Silver Chloride (+ 0.194 V)
Sample: IZO, ZnO, In_2O_3 (15nm) / SiO_2 /p^{++}-Si
Measured under dark conditions.

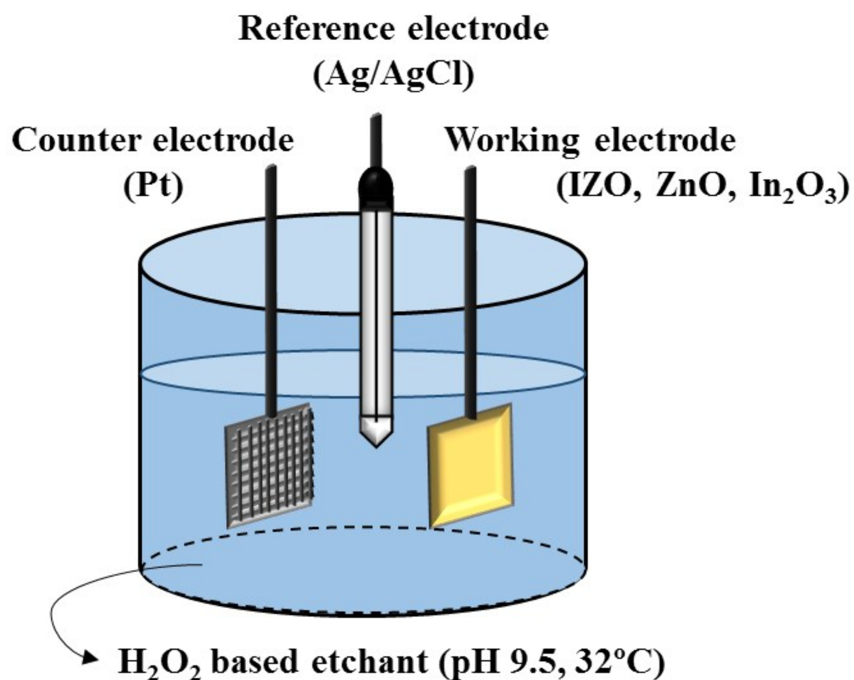


Fig. S4. Electrochemical dissolution system for monitoring the etching behavior of solution-processed indium zinc oxide, ZnO, and In_2O_3 films in the H_2O_2 based wet-etchant (pH 9.5).

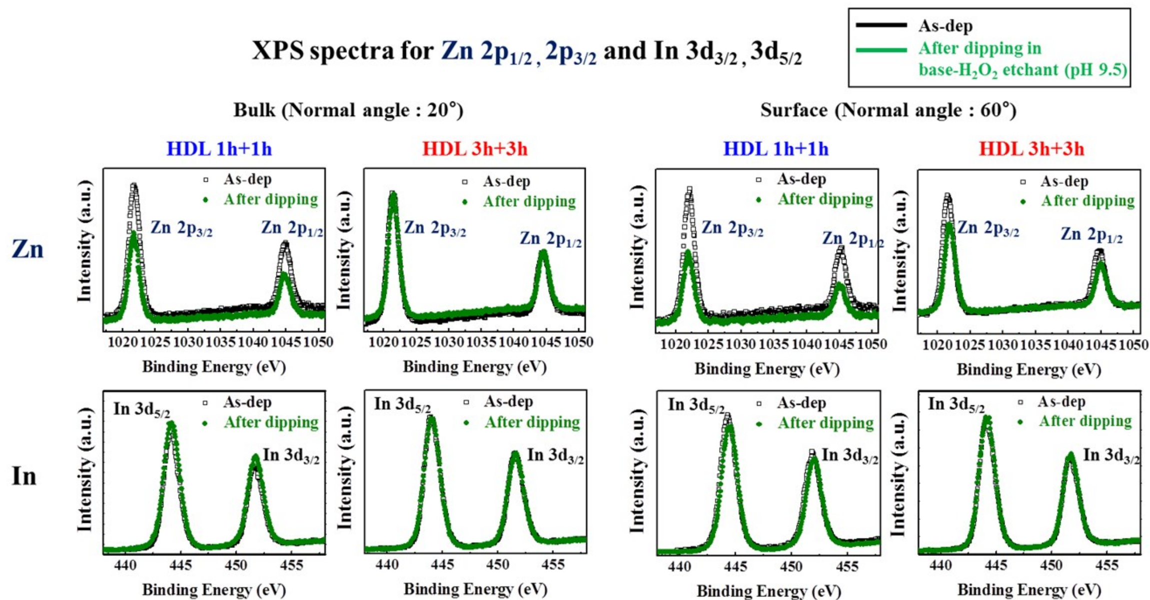


Fig. S5. In 3*d* and Zn 2*p* angle resolved X-ray photoelectron spectrum from the surface and bulk regions for solution-processed indium zinc oxide thin films (HDL 1h+1h and HDL 3h+3h) before and after dipping in the H_2O_2-based wet-etchant for 30 s (pH 9.5).

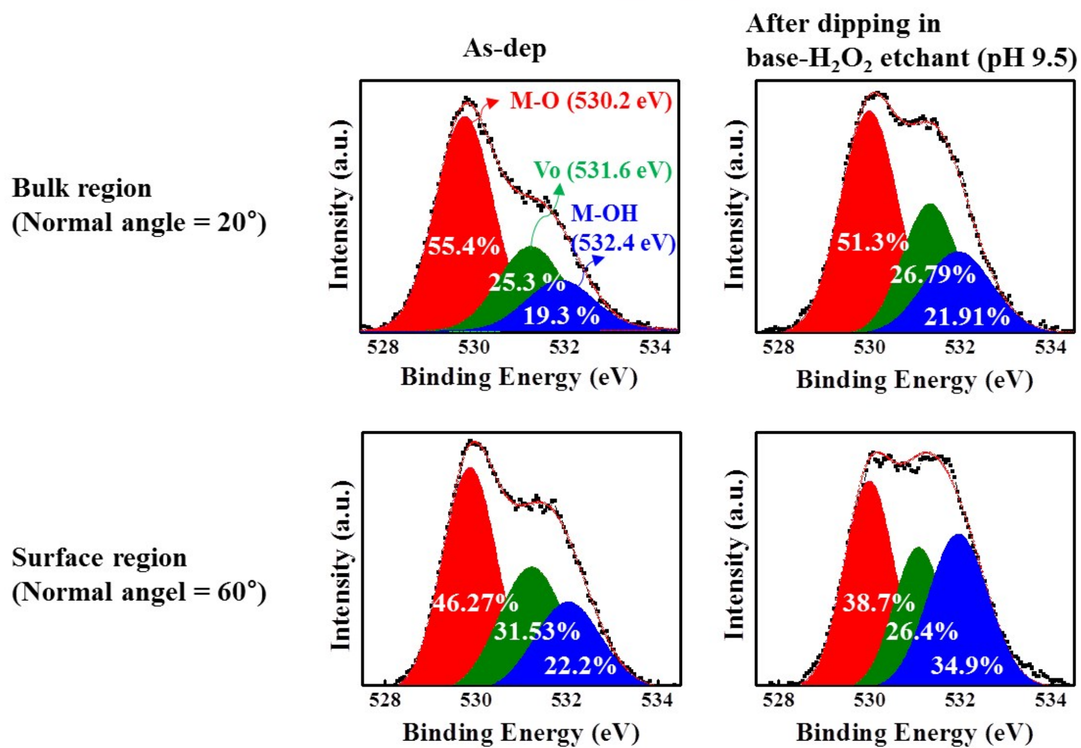


Fig. S6. O 1*s* peak angle resolved X-ray photoelectron spectrum from the surface and bulk regions for solution-processed indium zinc oxide thin films (HDL 1h+1h) before and after dipping in the H_2O_2 based wet-etchant for 30 s (pH 9.5).

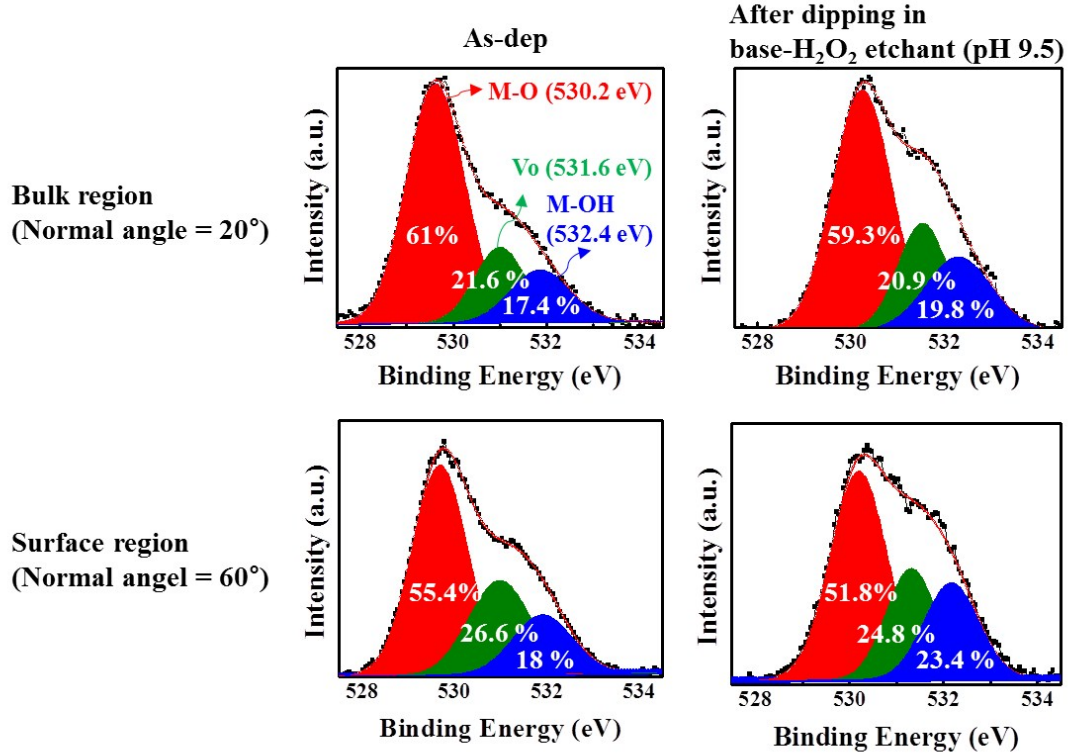
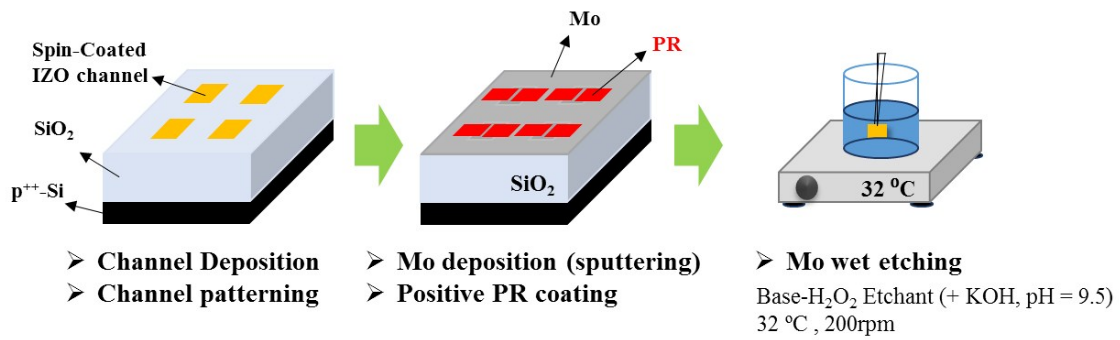


Fig. S7. O 1*s* peak angle resolve X-ray photoelectron spectrum from the surface and bulk regions for solution-processed indium zinc oxide thin films (HDL 3h+3h) before and after dipping in the H_2O_2 based wet-etchant for 30 s (pH 9.5).

Mo wet etching Process



Mo Lift-off Process

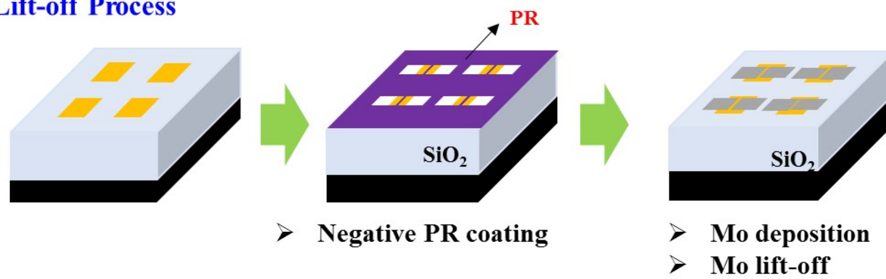


Fig. S8. Wet-etching using the base H_2O_2 wet-etchant (pH 9.5) and lift-off process of Mo source/drain electrodes for solution-processed indium zinc oxide thin film transistors.